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OREGON FLORA NEWSLETTER

Volume 6 Number 1 • Oregon State University • February 2000

Confessions of a diverger

by Frank A. Lang

[Dr. Frank Lang of Ashland is a member of the Oregon Flora Checklist Advisory Board. Many people consider Frank to be "Mr. Botany" of southern Oregon because of his prominent position in the botanical community in that part of the state.]

I was born and raised in Olympia, Washington. My life's ambition always was to be a biologist and as luck would have it, my Boy Scout Nature merit badge counselor was naturalist Margaret McKenny, author of *The Savory Wild Mushroom*. A good part of my high school years were spent on field trips with Margaret and her friends. I met Roger Tory Peterson at that time.

I studied botany in high school in Olympia and after graduation decided to major in the subject at Oregon State College (now OSU). I enjoyed my four years in Corvallis, meeting my wife of 40 years there. Dr. Albert N. Steward, director of the herbarium, was my systematic botany teacher. I worked for him, filing plants and making drawings. Ferns were an interest of mine so I planned to study that group in graduate school at the University of Washington.

In Seattle I found no one interested in ferns. However, Dr. Arthur Kruckeberg asked me if I would be interested in determining why the gravelly prairies of western Washington

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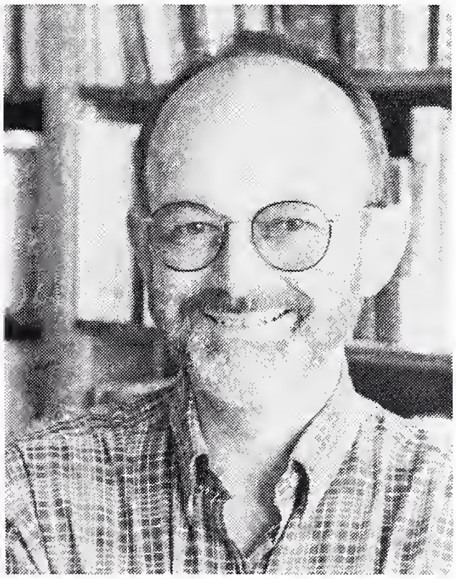

Frank Lang

Tofieldia gives way to *Triantha* in Oregon

by Kenton L. Chambers

Under the category of new names, it seems that another genus of Liliaceae is going to "disappear" from the state's flora; that is, it will receive an unfamiliar new name. We have previously noted the loss of *Smilacina*, which was absorbed into *Maianthemum*, and of *Disporum*, which changed its name to *Prosartes* for all the New World species. The latest victim is *Tofieldia*, which has been split in a way that transfers the Oregon taxa to the genus *Triantha*. In his recent review of *Tofieldia*, Dr. John G. Packer (*Novon* 3:278-279, 1993) noted that the "*Tofieldia glutinosa* group" differs from other species of the genus in having glandular-pubescent stems (rather than glabrous ones) and racemes with multiple flowers per node (instead of always one per node). These features, together with microscopic differences in the leaf epidermis, led him to place *T. glutinosa* in the genus *Triantha*. The change, which originated with J. G. Baker in 1879, has now been adopted by other modern experts on the Liliaceae; however, it has yet to make its way into the floristic literature for western North America.

Flora of the Pacific Northwest uses the name *Tofieldia* (now *Triantha*) *glutinosa* for the Oregon species, but Dr. Packer assigns our plants to the segregate taxon *Triantha occidentalis* (S. Watson) R.R. Gates. He recognizes two subspecies in the state: ssp. *occidentalis*, ranging from the Siskiyous southward into California, and ssp. *brevistyla* (C.L. Hitchc.) Packer, extending in the Cascades from Crater Lake to Mt. Hood and north to coastal Alaska. A third subspecies occurs in the Rocky Mountains.

The closely related species, *Triantha glutinosa* (Michx.) Baker, which is widespread in the eastern United States and Canada, differs from *T. occidentalis* in lacking a loose, spongy covering on its seeds. In 1991, I found several herbarium specimens from coastal Coos County, collected over 45 years earlier, whose seed morphology was like *T. glutinosa* (*Bull. Native Plant Soc. Ore.* 24:15-16). A 1997 collection of *T. glutinosa* by Peter Zika from a cranberry bog near Floras Lake, Curry County, shows that this species has indeed been introduced into Oregon, probably as an unnoticed hitchhiker on cranberry plants imported from the East Coast for commercial propagation!

Species lists requested for the Atlas project

The Atlas project is gearing up for the coming field season and needs your species lists! We need the lists so field workers can search for unlisted species. This field season volunteers will be searching for new records in many of the 174 Oregon "blocks" [areas of approximately 525 square miles; see OFN 2(2)]. We will provide lists of previously reported species to people who wish to "adopt" blocks, and we hope to make these initial lists as complete as possible. If you have lists you would like to include in the Oregon Vascular Plant Atlas, please send them to us. Send lists to Scott Sundberg (see bottom of this page for contact information), to Wilbur Bluhm, the new NPSO State Atlas Coordinator, or to your Regional Coordinator. Contact us to adopt a block or for more information on the Atlas project.

Illustrations of *Erythronium oregonum* on the front and back covers by Linda Ann Vorobik.

The Oregon Flora Newsletter is published three times a year by the Oregon Flora Project and the Oregon State University Herbarium. The Editor is Rhoda Love and the Production Assistant is Aaron Hodges.

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Look for *Limnanthes macounii* on the Oregon coast

by Adolf & Oluna Ceska

[The following is taken with permission from a longer article which first appeared in Botanical Electronic News (BEN) *# 225, June 7, 1999 and was reprinted in* Menziesia, *Vol 4 # 4, 1999.]*

Macoun's meadowfoam, *Limnanthes macounii*, is an enigmatic plant which was first described from Victoria, B. C. and until recently was known only from Vancouver Island and adjacent areas. The first specimens were collected by John Macoun (pronounce "Macown") "in ditches at Victoria" in 1875. W. Trelease described the new species, naming it for the collector. The plant was at the center of botanical interest in Victoria at the beginning of this century when botanists regularly visited certain populations and a few new sites were found. Hitchcock described it as "rare and seldom collected."

The tiny meadowfoam is a winter annual that occurs along the coast in vernal pools, depressions in rocks, seepy places, and often also in open Garry oak and Douglas fir forests. The sites are seasonally wet or flooded from winter rains and bone dry in summer. The plant germinates in October after the first heavy rains. At this phase it is the most conspicuous since it starts well ahead of other annual species. Later it is easily overlooked, as its 4-merous flowers are inconspicuous and it is usually overgrown with other vegetation.

Our interest in the distribution of *Limnanthes macounii* began in 1972 when we found a new site in Victoria. By the late 1980s we were able to list 53 populations of Macoun's meadowfoam from about 25 localities on Vancouver and nearby islands. However, the species remained a local endemic with a very narrow range.

It is difficult to explain the presence of this species, relatively distinct from other species of the genus, in an area that was glaciated until approximately 12,000 years ago. In our 1987 report we offered several possibilities for this distribution. The hypothesis we prefer is that the present range is a northern extension of an originally more southerly distribution, the species having spread into its present localities together with various other southern floristic

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Limnanthes macounii

Unexpected rushes (*Juncus*) in Oregon's cranberry fields

by Peter Zika

Cranberries *(Vaccinium macrocarpon)* are native to eastern North America. Their tart taste was popular enough to create a cranberry industry, centered in southeastern Massachusetts, which currently is worth more than $50 million a year. Starting in 1885 farmers began cutting their cranberry vines and shipping them to the west coast, where the vines (and weed seeds on the vines) became established on coastal Oregon farms. During our summer drought, cranberry fields are irrigated to satisfy the thirsty *Vaccinium* vines, and a number of interesting wetland sedges and rushes coexist with them on the sandy or peaty substrate. Some of the rushes were previously unknown from Oregon, and were first discerned when the Oregon Flora Project turned a critical eye to the herbarium collections in Corvallis.

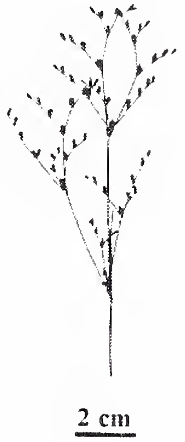

Figure 1. Introduced brown fruited rush, Juncus pelocarpus.

Now we know that there are several rushes (*Juncus*) from eastern North America firmly established among the cranberries. You will find no mention of these in our regional botany books. One is brown fruited rush, *Juncus pelocarpus*, first collected in Oregon in 1958 among cranberries. With widely spaced solitary flowers (Figure 1), it resembles the common toad rush, *J. bufonius*, but a fleshy rhizome distinguishes *J. pelocarpus* from *J. bufonius*, an annual. Brown fruited rush commonly spreads by fragmentation of its fragile rhizome, or by deciduous bulbils that replace flowers in its inflorescence. These propagules float, and when cranberries are harvested by flooding the fields, the bulbils and seeds are released into the nearest waterway.

Tapered rush (*Juncus acuminatus*) and jointed rush (*J. articulatus*) are two common native species west of the Cascades in Oregon (Figure 2). They are both common plants in cranberry farms and along drainage ditches intermixed with *Vaccinium*. Their inflorescences are much branched, and their leaves are hollow and tubular, with cross-walls at short intervals. Mingling with them are two cryptic eastern invaders: short tailed rush (*J. brevicaudatus*) and Canada rush (*J. canadensis*) (Figure 3). The four cranberry weeds can be distinguished in fruit. The two introduced species, *J. brevicaudatus* and *J. canadensis*, have seeds with tails. The seeds are black in the former and brown in the latter. The two native taxa, *J. acuminatus* and *J. articulatus*, have seeds lacking tails.

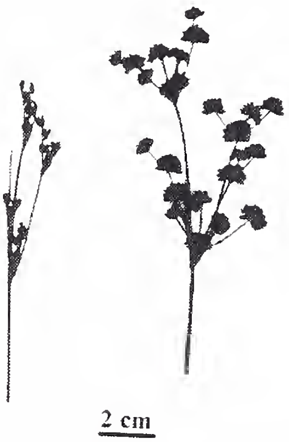

Figure 3. Introduced rushes: short tailed rush, Juncus brevicaudatus *(l) and Canada rush,* J. canadensis *(r).*

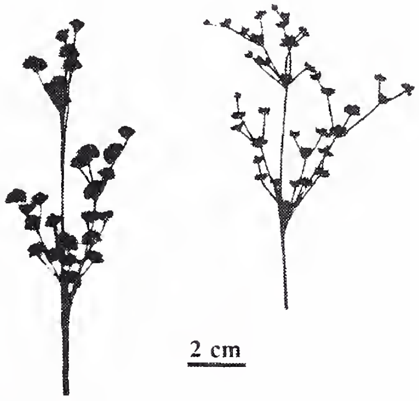

Figure 2. Native rushes: tapered rush, Juncus acuminatus *(l) and jointed rush,* J. articulatus *(r).*

In addition, short tailed rush and jointed rush both have smaller flower clusters. Short tailed rush has a reduced inflorescence, with incurved ascending branches, while jointed rush has a more widely spreading and intricately branched inflorescence.

More than ten rush species can be found in some of the large cranberry complexes in Coos County, including all of those mentioned above. These plants are annoying to the farmers, and perhaps ecologists should be alarmed too. Canada rush and brown fruited rush have both hopped over the garden fence, and are invading native plant communities in natural wetland systems. Cranberry weeds like rushes, bog candle (*Lysimachia terrestris*), and many St. Johnsworts (*Hypericum* spp.) are becoming pests in the wild in Oregon, Washington and British Columbia.

Limnanthes, continued from page 2

elements during the Hypsithermal period, while in the south it either became extinct—or was overlooked.

In March 1998 Eva Buxton found a large population of *L. macounii* near Moss Beach, San Mateo County, California, where it is abundant on approximately 18 acres of a seasonally fallow cabbage field. It is obvious that a cabbage field is not the native habitat of Macoun's meadowfoam in California! The question remains: can we find this plant in native habitats south of British Columbia?

We urge west coast botanists to be on the lookout for *Limnanthes macounii* this winter. The best time to search is in mid-winter when the seedlings still have cotyledons and are conspicuous by their yellow-green color. When in flower the plants are almost impossible to find, but they again become more noticeable when they bear young fruits which are light yellow.

In Oregon the plant should be looked for in depressions in rocks with *Plagiobothrys scouleri*, *Plantago bigelovii*, *Trifolium depauperatum* and *Isoetes nuttallii*. It also grows in seeps with *Mimulus guttatus* and *Montia fontana*, and we have seen it even in grazed Douglas fir forest with *Bellis perennis*. Until we get more information on the distribution of *Limnanthes macounii*, it will remain an enigmatic and elusive species.

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Photos of *Limnanthes macounii* can be found at the website: http://victoria.tc.ca/Environment/Botany/pictures.html.

Atlas of Oregon Carex

The Carex Working Group recently announced the publication of the *Atlas of Oregon Carex*. This publication, which documents the results of nearly 7 years of sedging in Oregon, is the first *Occasional Paper of the Native Plant Society of Oregon*. The *Atlas of Oregon Carex* has 128 location maps, one for each *Carex* taxon in the state of Oregon. Also included are Oregon geography maps, synonymy, a history of the project, and fun facts about sedges. For your copy, send a $5 check payable to the Native Plant Society of Oregon to:

Atlas of Oregon Carex
c/o Keli Kuykendall
4550 SW Nash Ave.
Corvallis, OR 97333

Lang, continued from page 2

were giving way to Douglas fir. I went to work on that problem, concluding that no regular fires since Indian times was the cause.

When it came time to seek a Ph.D., I considered working at the University of British Columbia on an ecological problem. However, when I visited, I met T. M. C. Taylor who asked if I would be interested in doing a taxonomic treatment of the *Polypodium vulgare* complex in the Northwest. For my thesis I worked out the evolution and taxonomy of our three taxa using comparative morphology, cytology, and geographical-ecological criteria.

In 1966 I came to Southern Oregon College (now Southern Oregon University), where I stayed for 30 years teaching botany, ecology and botanical illustration. In addition I served as department chair and chairman of the Faculty Senate. Eight summers were spent at the Malheur Field Station teaching biological illustration.

Upon retirement in 1996 I took up employment with the Bureau of Land Management. At present an intensive study of the Cascade/Siskiyou Ecological Emphasis Area between Pilot Rock and Soda Mountain occupies my time.

Some of my career highlights have been: Discovering that my *Polypodium* work was confirmed based on DNA and isozyme analysis. Also I had two year-long sabbaticals, one to learn medical illustration, the other as a Visiting Scholar at Harvard University's Gray Herbarium. I served as President of the Native Plant Society of Oregon, coeditor of their newsletter, and editor of the society's magazine *Kalmiopsis*. And for three years I was on the Oregon State University Press Board of Editors, the last year as chairman. Recently I received a Volunteer of the Year award from the Nature Conservancy.

My proudest accomplishments are a forty-year marriage and two wonderful children. I also wrote and broadcast several hundred "Nature Notes" on Public Radio. And I trained a host of students who took up botany as a career.

Friends news

The Friends group has opened the new year with enthusiasm. Our committee has a new chair, Dr. Linda Hardison. Other currently active members are Michael Hartman, Keli Kuykendall, Rhoda Love, Esther McEvoy and Scott Sundberg. We are updating a brochure, and preparing a poster to be distributed for display at society and professional meetings. We thank the NPSO for their unflagging support. We continue to seek funding from foundations and organizations as well as from individual donors. One generous donor has contributed money earmarked for a scanner. This will greatly help in the production of the newsletter. Other items on our wish list include a color printer, and funds to purchase the text, *Illustrated Companion to Gleason and Cronquist's Manual: Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada.*

All contributions will be cheerfully accepted and gratefully acknowledged. Please make your checks out to NPSO, and mail to: Friends of the Oregon Flora Project, P.O. Box 402, Corvallis, OR 97339-0402, or they can be made out to the OSU Foundation and sent to the address in the box on page 5.

Project news

by Scott Sundberg

With this issue, the *Oregon Flora Newsletter* begins its sixth year! It is now sent to more than 560 subscribers as well as several libraries, botanical gardens and agencies in 26 states and five countries. Thanks, Rhoda, for editing the newsletter, and thanks to Camille Tipton, Alisa Anderson, and Aaron Hodges, who have assisted in its production over the past five years. The online version of the newsletter has been maintained by Eric Peterson, Doug Linn and Joe Blank. Currently we do not have a webmaster but we hope to update the web page soon.

During the past few years the draft Checklist has been used for a number of projects. For example, a new printing of the book *Winter Twigs*, by Helen Gilkey and Patricia Packard, will have updated nomenclature, based on the names currently accepted in the Oregon Checklist. Dr. Packard is revising it with the assistance of Rhoda Love and myself. The Checklist has also been used for revising nomenclature in the Lane County Checklist, collections in a few herbaria, and several books, including popular field guides, wetland manuals, and guides to fruits and berries. OFP members are consulted on a regular basis for information on names of Oregon plants.

I'm pleased to announce that Wilbur Bluhm and Caroline Lindstedt are joining the Atlas project. Wilbur [see OFN 3(2)], who is a prolific compiler of Oregon plant species lists, is the new Native Plant Society of Oregon State Atlas Coordinator. He will coordinate activities of Regional Coordinators (RCs) and other volunteers who are compiling species lists. Caroline Lindstedt is the new RC for Region 8, which comprises a large area in Central Oregon. She takes over from Katie Grenier. Katie has been the RC of that region since the beginning of the Atlas project and continues to be an active participant. Thanks, Caroline and Katie!

Thanks

Thanks to the Native Plant Society of Oregon, which has made a significant contribution to the Oregon Flora Project. Thanks also to its Emerald and Portland chapters.

The following people have recently contributed via the OSU Foundation or the NPSO Friends: Karl Anderson, Wilbur & Mary Bluhm, Roger & Miryam Brewer, Paula Brooks, Rob Castleberry, Glen Cole, Terry Dallas & Doug Debok, Robyn Darbyshire, Jim Duncan & Elaine Plaisance, Don Eastman, Mike & Nancy Fahey, Louise Godfrey, Phyllis Gustafson, Bonnie Hall, Glenn & Barbara Halliday, Susan Hawes, Aileen Ho, Pat & Noel Holmgren, Charlene Holzwarth, Suzanne and Frank Lang, Shane Latimer, Sara & Aaron Liston, Kenneth & Robin Lodewick, Rhoda & Glen Love, Dan Luoma, Vern & Madeline Martalla, Thomas Meehan, Margaret & Stan Meierhenry, Greg & Gail Miles, Don Minore, Dan & Pat Montague, Bruce Newhouse, Julie & Mark Nichols, Theodore & Laramie Palmer, Daniel Powers, Don Roberts, Freeman Rowe, Charlene J. Simpson, Richard Sommer, Veva Stansell, Kareen Sturgeon, Norm & Donna Sundberg, George Swan, Jeffrey and Linda Taylor, Elaine Urban, Dwane Williams, Margi Willowmoon, Beatrice Wilson, Susan Yamanaka and two anonymous donors.

Thanks to the following who helped by volunteering, sending species lists or specimens, or providing information on Oregon plants: Wilbur Bluhm, Dennis Isaacson, David Keil, Virginia Maffitt, Mike McKeag, Margaret Meierhenry, Johnny Proctor, Elaine Urban, Molly Widmer.

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Did you know?

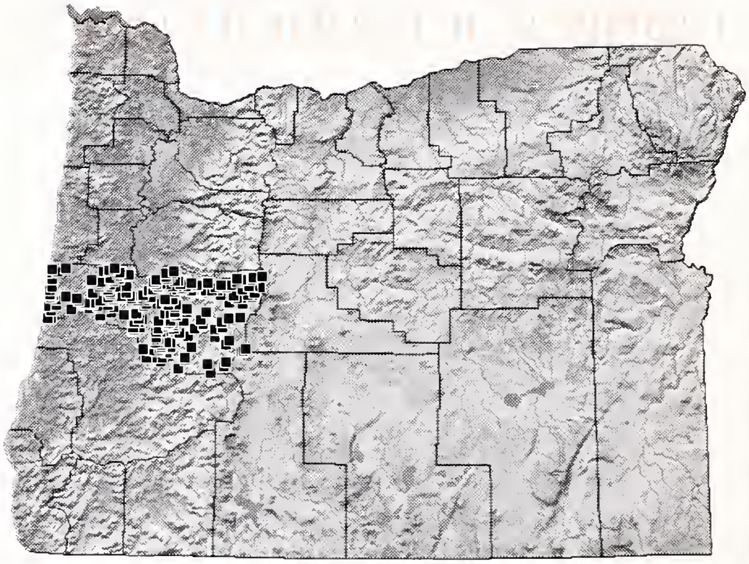
New species for Oregon —one hundred years ago

A century ago, on a 1900 sabbatical leave at Harvard University's Gray Herbarium, Louis F. Henderson described and named a number of new species he had collected. (See Bulletin of the Torrey Botanical Club, *27(6): 342—359.) Although first found in Idaho, the three below are part of the Oregon flora.*

- Western quillwort, *Isoetes occidentalis*, was collected at Lake Coeur d'Alene. The type specimens burned in the Idaho fire of 1906, but fortunately the botanist had deposited duplicates at Harvard and Columbia. A recent description can be found in Volume I of *Flora of North America*.

- Least phacelia, *Phacelia minutissima*, was collected at 8,000 ft. elevation on Soldier Mountain and can be found in the Oregon Wallowas. The dwarf annual is rarely collected. Henderson deposited duplicate types at the Smithsonian and the Gray Herbarium.

- Snake Canyon nemophila, *Nemophila kirtleyi*, was found in warm loose soil under ponderosa pines near Florence, Idaho. It barely gets into Oregon in the Snake River canyon. There is a type specimen at the Smithsonian and a duplicate type at Harvard.



Lane County species lists in the Atlas database

Lane County has been well-botanized! One of the ways we can check for errors in the Atlas database is to make maps showing records from a particular county or ecoregion. The first time we mapped locations of Lane County lists, one dot fell far outside the county, in Central Oregon. This revealed a typographical error in the database, which was subsequently corrected.

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OREGON FLORA NEWSLETTER

Volume 6 Number 2 • Oregon State University • June 2000

John B. Leiberg 1853-1913, Northwest botanist and forester

by Sarah Walker,
Idaho Native Plant Society

John Leiberg surveyed western flora and forest reserves as a field agent for the U.S. Department of Agriculture (USDA) and the U.S. Geological Survey (USGS) during the late 1800s and early 1900s. An energetic and insightful botanist, he was fascinated with Oregon, writing in a 1903 letter that he found the eastern part of the state "teeming with curious and undescribed species of plants." His impressive personal collection, which he gave to the herbarium of the University of Oregon, formed one of its important early acquisitions.

Leiberg was born in Sweden and was interested in plants from an early age. His family moved to Iowa when he was fifteen. He collected plants and worked as a railroad agent,

See Leiberg, page 8

In 1890, John Leiberg sent this photograph of himself to Elizabeth Britton: "I am not very fond of having my photograph taken. It was done this time at the request of Mrs. Leiberg . . . I think some time ago you asked for my picture for the [Torrey Botanical] Club and I promised you one." Photo courtesy of NY Botanical Garden. Reprinted with permission.

Oregon delphiniums -- easy to collect but hard to identify, Part I

by Kenton L. Chambers

Early this year, I took on the job of writing a treatment of the genus *Delphinium* (larkspur) for the Oregon Vascular Plant Checklist. Not having studied the group before, I decided to acquaint myself with its diversity by examining all the herbarium collections of larkspurs at Oregon State University. Now, three months and over 1000 specimens later, I have a newfound respect for the taxonomic complexity of *Delphinium*! One major difficulty with the genus is deciding where to draw the boundaries between its species. Due to their generally similar floral structure, as well as the absence of genetic barriers to intercrossing, species of larkspur are known to hybridize in many different combinations. We would expect that if gene exchange continues long enough, the morphological gaps between particular taxa may become blurred, and novel combinations of traits may arise. As I suggest below, this appears to have happened more than once among our Oregon larkspurs, and perhaps it even gave rise to a new species of hybrid origin.

Delphinium species occupy a wide range of environments, from arid to moist, high elevations to near sea level, shady forests to open meadows, sagebrush scrub to grasslands. They are found almost throughout Oregon, are showy, and as I said in the title, are easy for botanists to collect. Herbarium specimens make excellent study material, retaining their floral colors for 100 years or more. Important taxonomic traits occur in the flowers, stem pubescence, leaf arrangement on the stem, leaf shape and degree of dissection, and in the underground parts—the roots and rootstocks. Other characters seem to vary with the environment, especially height, degree of branching, and size of inflorescence. In the discussion below, I will focus on the species that are found west of the Cascade Range, saving my comments on the east-side taxa for a second article.

The number of *Delphinium* taxa that I recognize from west of the Cascade crest is 11, which coincidentally is the same number for this area as one finds in M. E. Peck's *Manual of the Higher Plants of Oregon*. Peck's list of taxa is not identical to mine, however, and I assign a different geographical range than he did to certain species. For example, *Delphinium glareosum* (rockslide larkspur), which is

See Delphiniums, page 12

Leiberg, continued from front page

first in frontier Iowa, then in Minnesota, South Dakota, and Montana. He was drawn to Idaho by the 1883 gold rush and later settled on Lake Pend Oreille with his wife Carrie, who was a doctor, and their young son.

He was intrigued with the moss flora he observed while prospecting in the forests of the North Fork of the Coeur d'Alene River and began a life-long correspondence with Elizabeth Britton, bryologist at Columbia College in New York. The outcome of Leiberg's prospecting is not known. In 1893 he was hired by the USDA botanist Frederick Coville to assist J. H. Sandberg, another Swedish botanist. Their assignment was to explore and collect the flora of the plains of the Columbia and to determine the eastern and western boundary of the same. This may have been his first job as a botanist.

Leiberg worked as a government field agent in the west for the next thirteen years as a botanist for the USDA and National Herbarium, and as a forester for the USGS. His work took him to Idaho, Washington, Oregon, Montana, California, Arizona, and even the Philippine Islands.

He was assigned to eastern and central Oregon and the south Cascades during the field seasons of 1894, 1896, and 1899. In letters that Leiberg wrote to Coville from the field in Oregon, he described his adventures and discoveries in terms that are familiar to today's field workers. He began each field season eagerly, only to swear he'd never do it again come fall. In the spring of 1894 he was delayed by rainy weather, irregular trains crowded with unemployed workers from the 1893 financial crash, and muddy roads. He wrote Coville: "Going across the Columbia Plains in Washington last year was child's play compared with this" adding that now he understood why there'd been few botanical explorations in central Oregon. His papers were soaked, it was hard to dry his specimens, and he had to find post offices to mail back the bundles of dried plants. By August 6 he had several thousand specimens to ship.

He wrote Coville about the landscape, flora, Indians, grazing, and weeds. He described the Umatilla tribe's system for drying the roots of "Cous" and the Klamath tribe's preparation of "Wo-Kash" from the seeds of *Nuphar polysepalum*, "the making of it is destined to pass away before long. It is now wholly confined to the old people." From Heppner he reported: "Wherever the land has been grazed more than 70% of the vegetation are composed of one single species *Erodium cicutarium*," while the area 30 miles southwest of Heppner was the "best and most abundantly grassed section I have ever seen west of the Rockies."

Leiberg's last field season in Oregon, 1899, was spent in the Ashland and Cascades forest reserves in Jackson and Douglas Counties. He also visited Crater Lake on this trip.

Leiberg found over 50 species previously undocumented in Oregon. Several are considered rare today: *Amsinckia carinata*, *Collomia macrocalyx*, *Cryptantha propria*, *Eriogonum ochrocephalum* ssp. *calcareum*, and *Trifolium leibergii*. When he and Coville collected together at Crater Lake in 1896, they documented *Castilleja chlorotica* from Gearhart Mountain and *Collomia mazama* from Crater Lake. Another Oregon species still named for him is *Poa leibergii*.

Leiberg's government work ended in 1906 and he moved to Leaburg, Oregon. He continued to collect mosses, and took up the study of termite parasites. Sadly, he died shortly after his sixtieth birthday from complications of diabetes. Very little has been written about his life and the facts of his education are not known. Most of the reports he wrote while working for the USDA were not published (while all of the USGS forest reserve reports were published). His letters and plant catalogues are archived in various herbaria, libraries, and the National Archives.

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Leiberg, J.B., in F.V. Coville, Letters. "Records of the Bureau of Plant Industry, Record Group 54," National Archives, Washington DC.

Leiberg, J.B., in C.V. Piper, Papers. Washington State University Libraries, Pullman, WA.

Illustrations of *Erythronium oregonum* on the front and back covers by Linda Ann Vorobik.

The Oregon Flora Newsletter is published three times a year by the Oregon Flora Project and the Oregon State University Herbarium. The Editor is Rhoda Love and the Production Assistant is Aaron Hodges.

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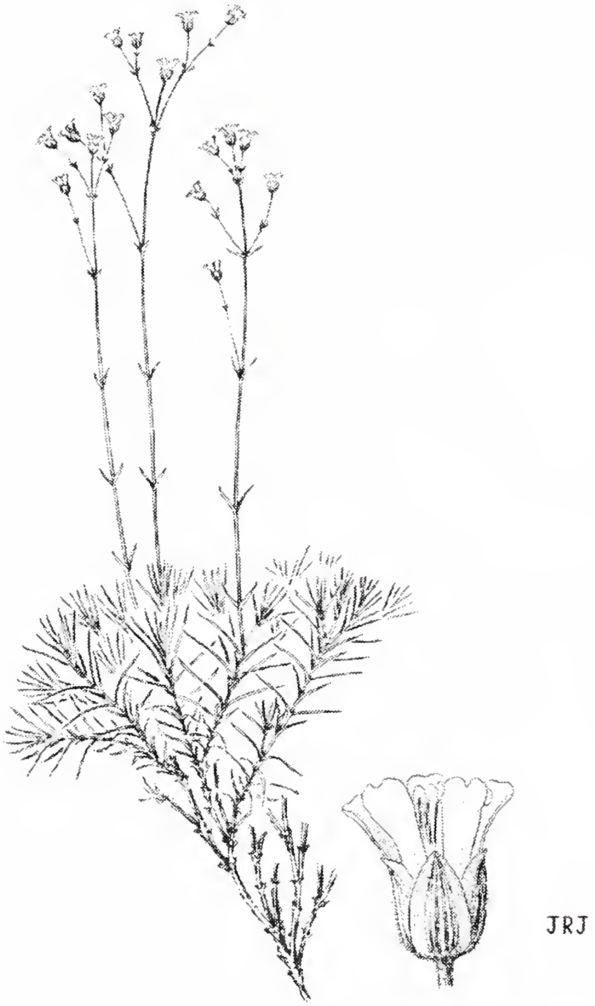
Oregon sandworts

by Henrietta Chambers

North American botanists have been slow to accept the narrower generic concept of *Arenaria* (Sandworts) adopted by European botanists in the early years of the twentieth century. These workers segregated *Minuartia*, *Moehringia*, and *Honkenya* (our genera) from *Arenaria*. According to McNeill (1980), the genera which were formerly included in *Arenaria* fall into two groups. In one, the capsule splits into as many valves or segments as there are styles, and in the other group, the capsule splits open by twice as many valves as styles. The number of valves is best determined by counting the teeth on the open capsule. *Minuartia* and *Honkenya* are in the first group, and *Arenaria* and *Moehringia* in the second. *Moehringia* is separated from *Arenaria* by the presence of appendaged seeds and slim branching rhizomes.

We now recognize seven species of *Arenaria* in Oregon. Two other species have been transferred to *Moehrigia*, and six to *Minuartia*. Earlier Oregon floras had already recognized *Honkenya*. The following discussion covers Oregon *Arenaria*.

Hickman (1971) states that *Arenaria* is one of the taxonomically most difficult genera in western North America. Five of the seven species that occur in Oregon, (all except *A. serpyllifolia* and *A. franklinii*) belong to the section *Eremogone* that he studied. Some of the species are quite localized in their distribution and others are widespread. *Arenaria serpyllifolia* is a common Eurasian weed which has become widespread in North America. Ours, *A. serpyllifolia* ssp. *serpyllifolia* (thyme leaf sandwort) grows at low elevations and can tolerate habitat extremes: dry to moist, clay or sandy soil, grassy or wooded sites. It is our only annual species, and its most significant diagnostic character is the presence of minute hairs on the stems, leaf margins, sepal margins and veins (ribs) of the sepals. It is very slender, with tiny ovate to lanceolate leaves (3-7 mm long) and flowers that are borne in loose cymes.



Prickly sandwort, Arenaria aculeata, *is a perennial with tall, open inflorescences and glaucus leaves with sharp, yellow tips. Illustrations on this page and pages 10 and 12 by Jeanne R. Janish from Hitchcock et al. 1969,* Vascular Plants of the Pacific Northwest, *courtesy of University of Washington Press.*

Arenaria franklinii is distinct from the other eastern Oregon species because the flowers are not elevated above the leaves but sit in clusters at the tips of the vegetative branches. Morphological differences of the flowers divide this taxon into two varieties, which also coincide with a geographical separation. *A. franklinii* var. *franklinii* (Franklin's sandwort) grows on sand dunes, ash and ash-clay soils, scablands and sagebrush hills throughout eastern Oregon. The calyces of these plants are longer than other sandworts in the state (8-12 mm) and have acuminate teeth extending 2-3 mm beyond the petals. The second variety, *Arenaria franklinii* var. *thompsonii*, (Thompson's sandwort) has shorter sepals (5-8 mm long) which are approximately the same length as the petals. It is a narrow endemic that grows in sandy or rocky soils along the Columbia River in Wasco, Gilliam and Morrow Counties.

There are four species of tufted perennial sandworts which can be difficult to distinguish (Hickman, 1971). They all have inflorescences elevated above the clusters of needle-like leaves. Their calyces vary from acute to ovate to obtuse and have white or hyaline margins. *Arenaria pumicola* (Crater Lake sandwort) is an alpine perennial, most commonly found in southern Oregon but occurring as far north as Marion County, north of Jefferson Park. The type locality is Crater Lake where it grows in the Pumice Desert, Llao Rock, and many peaks in the vicinity (Mt. Thielsen, Mt. Bailey, Devil's Peak). The plants have straight, tufted leaves, which are usually less than 3 cm long. The sepals are broadly acute to obtuse with wide, papery white margins.

Arenaria kingii var. *glabrescens* (King's sandwort) grows in Malheur and Lake Counties. This distribution represents the northeastern extreme of its range, which is primarily south to central California and east to central Idaho. These plants are more delicate and finer-leaved than the other eastern Oregon species, which tend to have rather stiff, sometimes very sharp-tipped leaves. The small flowers are borne in loose cymes and have ovate to lanceolate sepals (6 mm long) that are green along the midrib and have white margins. The sepals are often purplish and can be thickened at the base. There is a similarity in the habit of this taxon with *A. congesta* var. *prolifera* but the calyces are longer, narrower and more pointed in the latter and the inflorescences are more

See Arenaria, page 11

Leapfrogging Lane County

by Charlene Simpson,
Emerald Chapter, NPSO

I am not writing about the celebrated jumping frogs of Calaveras County, but rather about plant species that apparently "leap over" Lane County. These leapfrogging species have been identified as Emerald Chapter NPSO botanists have done research for the Lane County Checklist (see OFN 2(1):4). So far we have failed to find evidence of occurrence in Lane County of a number of taxa known from locations both to the south and north of our region.

During the early stages of our research we looked for these taxa, unwilling to accept that they seemingly leap over our area. We remained optimistic considering Lane County's large size and habitat diversity. Surely, we thought, the absent species were out there just waiting to be found. However, as herbarium and field searches failed to document any of the missing species we deleted them one by one from our Checklist.

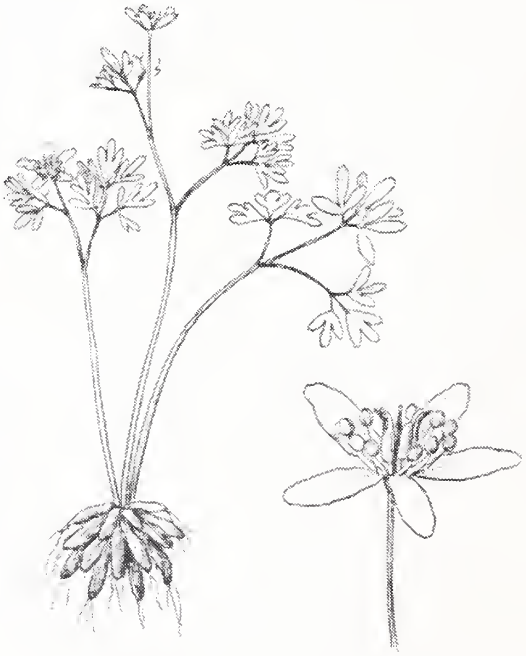
Why have the species listed below not been found in Lane County? Are some perhaps plants which lived within the boundaries of what is now Lane County in the past, but which have been extirpated for one reason or another? Alternatively, have some never been distributed here —have they found no niche in our territory to their liking? We know, for example that Lane County has limited estuarine habitat. Perhaps these scenarios may apply to some, but we prefer to believe that most on our list are present in our county but simply have not been looked for in the right places or at the right times. If so, we reason that some sharp-eyed OFN readers may be able to help fill in some of the gaps.

Why are we interested? Because the Lane County Checklist of Vascular Plants Project is alive and well. Eight Emerald Chapter members plus Scott Sundberg of the Oregon Flora Project are actively working to prepare our Checklist for publication.

The list below represents Emerald Chapter's Most Wanted list of missing taxa. If readers have information leading to a Lane County location for any of the following, please contact Charlene Simpson, Lane Checklist Project Manager, at csimpson@oregon.uoregon.edu or call her at (541) 465-1059.

List of Lane County "Leapfroggers"

- *Agrostis densiflora*, coastal bluff bentgrass. Coastal Curry and Lincoln Counties on sandy soils and sea-facing bluffs.
- *Allium unifolium*, one leaved onion. Coast Ranges of California and interior valleys of Polk and Yamhill Counties, along grassy stream banks on moist clay.
- *Cacaliopsis nardosmia* ssp. *glabrata*, tall silvercrown. Coast and Cascade ranges and interior valleys of Douglas and Benton Counties, in meadows and open woods.
- *Carex vulpinoidea*, fox sedge. Interior valleys and foothills of the western Cascades of Multnomah, Josephine and Jackson Counties, in marshes or standing water.
- *Cordylanthus maritimus* ssp. *palustris*, salt marsh bird's beak. Coastal salt marshes of Coos, Lincoln, and Tillamook Counties.
- *Darmera peltata*, umbrella plant, wild rhubarb. Coast Range of Coos, Josephine, Curry and Benton Counties, on wet rocks in streams and along stream banks
- *Enemion stipitatum* (*Isopyrum stipitatum*), dwarf isopyrum. Interior valleys of Benton, Polk, Yamhill, and Douglas Counties, and in California, in oak woodland and low elevation evergreen forest.
- *Hydrocotyle verticillata*, whorled marsh pennywort. Douglas, Coos, Curry, and Benton Counties, on swampy ground and lake margins in the interior valleys and along the coast.
- *Limonium californicum*, western marsh rosemary. Coastal salt marshes of Lincoln and Coos Counties.
- *Mimulus tricolor*, tricolored monkeyflower. Klamath, Benton, Linn, and Marion Counties. To be expected in the Willamette Valley on vernally wet flood plains.
- *Polystichum californicum*, California sword fern. Coast Range of Coos and Curry Counties and Western Cascades of Douglas and Linn Counties, along forested stream banks, wet cut banks and rocky slopes.
- *Ranunculus lobbii*, Lobb's aquatic buttercup. Wasco and Benton Counties and in California. To be expected in the Willamette Valley in vernal pools and shallow water.
- *Sanguisorba officinalis*, red burnet. Sphagnum bogs, marshes, and swamps of coastal Coos, Curry, Tillamook, and Lincoln Counties, and High Cascades of Clackamas County.
- *Spirodela punctata*, dotted duckmeat. Interior valleys of Douglas and Benton Counties, in still water, backwaters, and log ponds.



Enemion stipitatum, *dwarf isopyrum*

Arenaria, from page 9

condensed. Both can be found growing on white-ash soils.

Arenaria aculeata and *A. capillaris* var. *americana* are two widespread taxa which occur in similar habitats. According to Hitchcock (1964) they occupy gravelly, sagebrush-covered hills ranging from 2,000 m up to alpine. Many of their differences are subtle and often comparative rather than quantitative. The calyces of both taxa can be glandular and purple or purple-tinged. The sepals of both taxa usually have conspicuous hyaline, white or purplish margins which contrasts with the green midrib. The basal leaves and the leaves on the flowering stems are better developed (longer) in *Arenaria capillaris* var. *americana* (mountain sandwort) than in *A. aculeata* (prickly sandwort) although there is a diminution in size progressing up the peduncle in both taxa. Leaf size overlaps in these taxa (*A. capillaris* var. *americana* leaves are 1-6 cm long while *A. aculeata* leaves are 1-3 cm long.). The leaves of the latter are also straight and rigid, and have a sharp yellow, tip which measures approximately 1 mm long. The dead leaves persist on the tufted stems making a somewhat shrub-like appearance. The leaves of *A. capillaris* var. *americana* may be straight or curved but they are more flexuous (less rigid), and the tips may be pale and apiculate but are not sharp and yellowed as in *A. aculeata*. Hickman (1968, 1971) states that *A. capillaris* var. *americana* appears to intergrade with all other species in Section *Eremogone* in Oregon. He annotated many collections as hybrids or intermediate in morphology between two or three taxa.

The variability of *Arenaria congesta* in Oregon is recognized by dividing the species into two varieties which are separate geographically as well as morphologically. The typical variety, *A. congesta* var. *congesta* (ballhead sandwort) is the more widespread, occurring in three of the four corners of the state: Mt. Ashland, Steens Mountain, and the Wallowas as well as many localities in between. The flowers are clustered into a tight inflorescence which distinguishes it from other species. It has the habit of a clumpy grass or sedge because the leaves are narrow and distinctly longer than in the species previously described. Also, the tight clusters of flowers are more elevated above the basal leaves than in the taxa with cymose inflorescences. The stem leaves decrease in size toward the flower clusters. *Arenaria congesta* var. *prolifera* (glabrous sandwort) is found only in Malheur County, in the southeastern corner of the state. Its flower clusters are looser and can best be described as subcongested or umbellate.

A third variety, *A. congesta* var. *suffrutescens* has been cited from Oregon (Maguire, 1947) from a 1939 collection from Lake Mountain, Siskyou Mountains, Josephine County. However, there are no specimens from Oregon at OSU and we have not added this taxon to the Checklist. Hitchcock (1964) includes southern Oregon in the range of a fourth variety, *A. congesta* var. *cephaloidea*. This has tight heads like the typical variety, but is described as having calyx teeth that are narrower and with sharp-pointed tips. This seems to be a variable character however, and I have chosen not to recognize the latter variety.

The following key was devised using dried specimens and the keys from some of the cited references. It has not been tested in the field. Hickman (1971) preferred not to use sepal characteristics in his keys, but I have not had success in separating the taxa without using sepal shapes as diagnostic traits.

Key to the Oregon Species of *Arenaria*

1. Slender, erect, branching annuals, leaves ovate, Eurasian weed
: *A. serpyllifolia* ssp. *serpyllifolia*, thyme leaf sandwort

1. Caespitose, erect or procumbent perennials, leaves narrowly linear, native plants
  2. Inflorescences not elevated above the basal leaves
    3. Petals longer than the calyx teeth
    : *A. franklinii* var. *franklinii*, Franklin's sandwort
    3. Petals shorter or the same length as the calyx teeth
    : *A. franklinii* var. *thompsonii*, Thompson's sandwort
  2. Inflorescences distinctly elevated above the basal leaves
    4. Inflorescence cymose or umbellate
      5. Sepals obtuse, sometimes acute, apiculate
        6. Longest leaves 1-3 cm long
          7. Leaves stiff, somewhat fleshy, glaucous, with sharp yellow tips
          : *A. aculeata*, prickly sandwort
          7. Leaves thinner, often apiculate but lacking sharp yellow tips
          : *A. pumicola*, Crater lake sandwort
        6. Longest leaves 3-6 cm long
        : *A. capillaris* var. *americana*, mountain sandwort
      5. Sepals acute or acuminate
        8. Inflorescence a condensed umbel-like cyme, pedicels mostly shorter than the sepals
        : *A. congesta* var. *prolifera*, glabrous sandwort
        8. Inflorescence loosely cymose, pedicels longer than the sepals
        : *A. kingii* var. *glabrescens*, King's sandwort
    4. Inflorescence tightly capitate
    : *A. congesta* var. *congesta*, ballhead sandwort

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Delphiniums, continued from front page

best developed in the Olympic Mountains and the Cascades of Washington, comes south into Oregon only on the high peaks of the Coast Range of Clatsop and Tillamook Counties, rather than extending through the Oregon Cascades south to Lane County as previously supposed. Also, *Delphinium decorum* (coast larkspur), a species of the California Coast Ranges, enters Oregon only on the narrow coastal strip of Curry County and is not in the interior mountains as Peck thought. In my view, the common blue-flowered larkspurs of the Siskiyou Mountains in Oregon all represent *D. nuttallianum* (upland larkspur), which Peck believed was entirely east of the Cascades. The name *D. sonnei*, which was used by Peck for much of *D. nuttallianum* in southwestern Oregon, has dropped into synonymy both in my list and in the new *Jepson Manual: Higher Plants of California*.

There are three western Oregon larkspur species that are distinctive and show little confusing variability. These are the red-flowered *Delphinium nudicaule* (red larkspur) of the Siskiyou Mountains; the blue-flowered *D. trolliifolium* (poison larkspur), a tall, leafy-stemmed species with widely spreading sepals, found from the Columbia Gorge south to northwestern California; and the purple-flowered *D. glaucum* (mountain larkspur), also tall and leafy-stemmed but with forward-pointing sepals, common in the southern Oregon Cascades and ranging south to the Sierra Nevada and north to Alaska. Another blue-flowered western Oregon species that is reasonably distinctive is *D. nuttallii* (Nuttall's larkspur), found in the Columbia Gorge and in Clark and Skamania Counties, Washington. It has enlarged, tuber-like roots and resembles the much more common tuber-rooted species *D. menziesii* (Menzies' larkspur), but it has smaller flowers with forward pointing (rather than widely spreading) sepals, shorter floral pedicels (hence a narrower raceme inflorescence), and a distinctly hairy pair of drooping petals in the center of the flower. These two larkspur species are important to my theory of the origin of *D. oreganum* (Willamette Valley larkspur), described below.

On the state list of rare, threatened or endangered plants are three additional larkspur species of the Willamette Valley—*Delphinium oreganum*, *D. leucophaeum* (white rock larkspur), and *D. pavonaceum* (peacock larkspur). What surprising coincidence, one wonders, caused this concentration of rare species of a single genus, in such a limited geographical area! The range of *D. oreganum* is from Clackamas County to Linn County, almost entirely east of the Willamette River; *D. leucophaeum* is highly localized near the Willamette River just south of Portland; and *D. pavonaceum* is centered in Polk and Benton Counties, mainly west of the Willamette River. In terms of their morphological features, these three taxa can be characterized as follows: (1) *D. oreganum* is intermediate, in its floral and inflorescence traits, between *D. nuttallii* and *D. menziesii*; (2) *D. leucophaeum* almost exactly resembles *D. nuttallii*, but its sepals are white instead of blue; (3) *D. pavonaceum* is very similar to *D. menziesii* in all its features except flower color—it has white sepals and blue upper petals, instead of the blue sepals and white upper petals of *D. menziesii*! It seems evident that these five larkspurs are very closely related and have undergone some rapid evolutionary divergence, perhaps in the recent geological past.

My theory of the evolution of these fascinating *Delphinium* taxa is based on the catastrophic Ice Age flooding that occurred in the Willamette Valley, between 15,000 and 12,800 years ago. An excellent description of these Pleistocene floods of the Columbia River, called the Bretz Floods or Spokane Floods, can be found in the book *Cataclysms on the Columbia*, by J. E. Allen and M. Burns (Timber Press, Portland, OR, 1986). At least 40 times, at about 50-year intervals, a huge glacier-dammed lake in Montana burst forth and inundated over 16,000 square miles of Washington and Oregon landscape. The Willamette Valley was flood-scoured at its north end and filled by a temporary lake, up to an elevation of 400 feet, which extended south to the present location of Eugene. The repeated filling and then rapid draining of the lake must have created large areas of habitat disturbance, fresh deposits of silt and gravel, alteration of stream courses, and destruction of established vegetation. New genetic forms of *Delphinium*, produced by hybridization and/or mutation, became established in these disturbed sites, I believe, and evolved to form the three endemic species, whose ranges are even today exactly limited to the area of this so-called Lake Allison in the Willamette Valley.

Valuable studies of populations of these rare Willamette Valley larkspurs have been carried out by Gaylee Goodrich (M.S. thesis, University of Oregon, 1983) and by Lynda Boyer (M.S. thesis, Portland State University, 1999). Dr. Keith Karoly of Reed College is doing further research on their genetic differences. These new studies may help to clarify my hypothesis of rapid evolution in habitats that were disturbed by Pleistocene flooding; for example, that *D. oreganum* arose through genetic stabilization of hybrid populations between *D. nuttallii* and *D. menziesii*. The two white-flowered species, *D. leucophaeum* and *D. pavonaceum*, seem to have evolved directly from their respective parental blue-flowered taxa, *D. nuttallii* and *D. menziesii*. Isolation through altered pollination behaviors by insects, due to the changed flower-color patterns, seems a likely hypothesis in both cases.

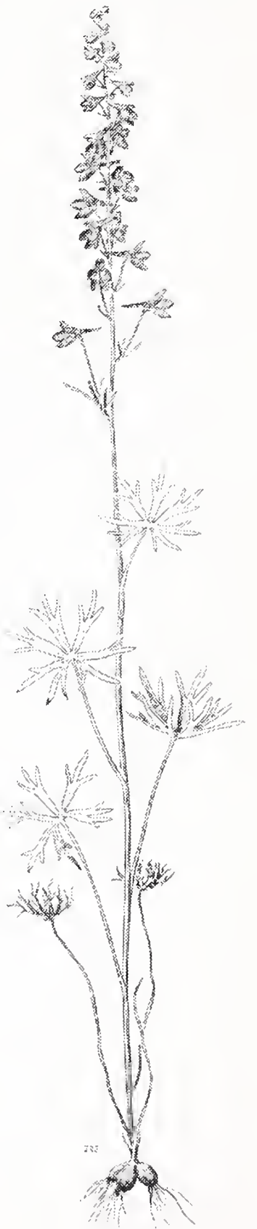

Illustration: Delphinium nuttallii

Friends News

by Linda Hardison

We have designated April as our Friends of the Oregon Flora membership campaign month. Some of you may have received a notice to renew your annual membership with a donation, and we thank those of you who responded. More thanks are due to the generous donors of our Wish List items; we now have a new color printer, a scanner, and an essential illustrated text! The Friends had an information table at the Mount Pisgah Arboretum Wildflower Show in May where we passed out materials to interested visitors. Margaret Meierhenry showed our display at the Shady Cove Annual Wildflower Show and at a meeting of the North American Rock Garden Society. The OSU Press service recently released to statewide news media a short article about the Flora Project. Have you seen it in your local newspaper? We're excited to have more people learn about this important project.

Project News

by Scott Sundberg

The Oregon Vascular Plant Checklist: Asteraceae, by Kenton L. Chambers and Scott Sundberg, has been reprinted. The second printing has minor changes in the main text and also includes an appendix with four additions to the checklist, two name changes, and updated notes on ten taxa. The appendix is free of charge. To receive a copy, please send a self-addressed stamped envelope to Scott Sundberg at the address on page 8. The entire checklist is available in return for a donation of any amount, or is free to people who have donated or volunteered in the past. Our cost for printing, mailing and handling is four dollars.

The Atlas project has recently gotten a big boost. Clay Gautier has produced Version 2.0 of a computer program for producing plant distribution maps over the Internet. It is now being evaluated by Atlas project leaders. We hope to complete an online demonstration of the Atlas within a few months.

We have made lists of plant species, subspecies and varieties (taxa) for each Atlas block (see map on back) using data in our database. Records for three blocks include over 1,000 taxa and 43 have over 500. We hope to obtain more records from many areas of the state, especially Eastern Oregon.

Aaron Hodges, who has worked for the Flora project for three years on database management tasks and has assisted with the OFN for a year, is graduating this month. We will miss Aaron and wish him the best of luck in his new job in Beaverton, Oregon.

Thanks

Thanks to the May Department Stores Foundation, Portland Garden Club, The Nature Conservancy, the Native Plant Society of Oregon and the Washington Native Plant Society, who have made significant contributions to the Oregon Flora Project. Thanks also to the Blue Mountain, Cheahmill, Siskiyou, and Umpqua Valley Chapters of the NPSO for their support.

Special thanks to Patricia and Noel Holmgren, Freeman Rowe and Rhoda and Glen Love, who made contributions for wish list items.

The following donors have also recently contributed via the OSU Foundation or the NPSO Friends: Gail Baker & Clay Gautier, Connie & Julian Battaile, Norma Booke, Lynda Boyer, Dick Brainerd, Jules Bubacz, Kent Coe, Barbara Deeming, Heidi Dobson, Jim Duncan & Elaine Plaisance, Marge & Dick Ettinger, Shelley Evans, Mike & Nancy Fahey, Joan & Ollie Fosback, Evan Frost, Dave Garcia, Jim Hardison, Rex Igo, Rosemary Kenney, Keli Kuykendall & Tom Kaye, Donald Limbaugh, Kenneth & Robin Lodewick, David B. Marshall, Merilee Meiners, Jeanne & Frank Moore, Ed Myers, Bonnie Brunkow Olson, Ginny & Jim Post, John W. Reynolds, Pete Ryan, John Savage, Rachel Schmidt & Eric Urbigkeit, Reid Schuller, Charlene Simpson, Veva Stansell (in memory of Jennifer Stone), Peter Stekel, Kareen Sturgeon, Mildred Thiele, Nancy Weber, Margaret Wiese, and Jo Ann Yeager.

Thanks to the following people who helped by volunteering, sending species lists or specimens, or providing information on Oregon plants: Karl Anderson, Alex Atkins, Connie Battaile, Julian Battaile, Joanne Benton, Frank Callahan II, Al Chase, Jim Duncan, Barbara Halliday, Glenn Halliday, Don Heinze, Rupert Hugh-Jones, Dennis Isaacson, Russ Jolley, Margaret Meierhenry, Julie Nichols, Rory Nichols, Judy Oliver, Robert Oliver, Elaine Plaisance, Pete Ryan, Mildred Thiele, Jeff Walker, and Walt Yungen.

New publications of note

Flora of North America Editorial Committee, Ed. 2000. *Flora of North America, North of Mexico, Vol. 22. Magnoliophyta: Alismatidae, Arecidae, Commelinidae (in part), and Zingiberidae*. New York: Oxford University Press.

Mansfield, D. H. 2000. *Flora of Steens Mountain*. Corvallis: Oregon State University Press.

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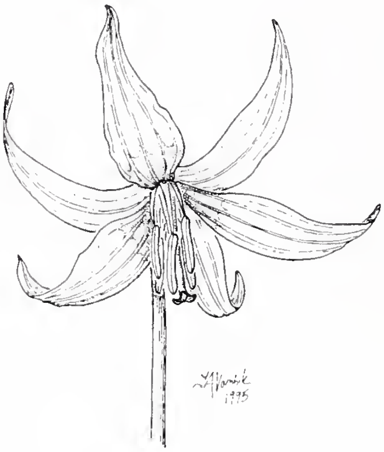

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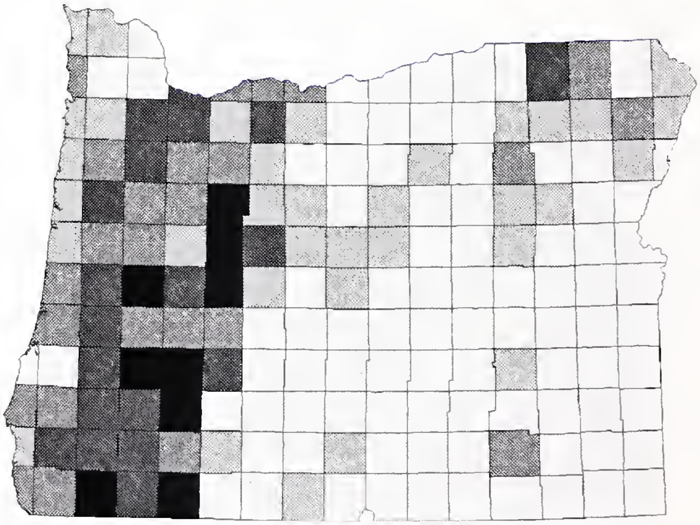
Did you know?

- Northwest collectors John B. Leiberg and Louis F. Henderson (OFN, 1999) were born in the same year, 1853. Both collected in Idaho in the 1890s for USDA botanist Frederick Coville. The two corresponded with each other and exchanged specimens; however, according to notes left by Henderson, they never met.

- In 1896 Leiberg collected a *Collomia* in Barren Valley, Malheur County, which he annotated, "Probably an undescribed species." The specimen eventually found its way to the California Academy of Sciences Herbarium, annotated *C. macrocalyx*. In 1983, Elaine Joyal, then a graduate student at OSU, relocated Lieberg's collection site in Barren Valley and subsequently determined that the plant was indeed an unnamed species to which she gave the name *Collomia renacta*, literally "*Collomia* re-stumbled upon."

- In 1911 Leiberg was living in Leaburg, a village on the McKenzie River east of Eugene. At that time he gave his large and very valuable personal herbarium to the University of Oregon because, as he wrote to Coville, Oregon was a poor state which needed to build up its collection. The Leiberg sheets are now part of the collection at OSU.



Number of species, subspecies and varieties per Atlas block in the Atlas database.

This summarizes data in the Atlas database of plant observations and herbarium specimens as of June, 2000. Hundreds of thousands of additional records will eventually be added from herbarium specimens and other sources. See OFN 5(1) for comparison to January 1999 data.

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Jason Alexander assisted with map production.

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OREGON FLORA NEWSLETTER

Volume 6 Number 3 • Oregon State University • October 2000

Dr. Linda K. Hardison, chairperson of the Friends of the Oregon Flora Project

by Rhoda Love

"Seeing firsthand the commitment and effort Scott Sundberg puts into the Oregon Flora Project gives me absolutely no doubts about the value and importance of a new flora for Oregon. My job is to communicate that passion to others, whose participation and donations will help to speed the work on this major contribution to botany in the Pacific Northwest," declared Linda Hardison in a recent interview for this biographical sketch.

Linda was born and raised in El Paso, Texas, where she was always interested in plants, whether in her mother's garden, the desert hills around her home, or the New Mexico pine forests where she camped. Linda entered the University of Texas at Austin in 1979 as a biology major. There, after a summer of research at the University's marine station, she declared a major in marine biology and botany.

Linda met her future husband, Scott Sundberg at that time. Scott was doing graduate work at Texas and they encountered each other when she was studying plant specimens posted in the hall outside his door. In 1984, Linda graduated and came to the Northwest on a three-month internship with the Salem District BLM. She then returned to Austin and worked as a plant physiology technician until

See Hardison, page 16

Photo: Rhoda Love

Linda Hardison and the Friends of the Oregon Flora Project display, Mt. Pisgah Arboretum, May 2000.

A tale of two blocks

by Scott Sundberg

During an interview a few weeks ago, I was asked which block I had adopted for the Oregon Plant Atlas Project. The Atlas project has divided Oregon into 176 "blocks" to aid in our efforts to map the distributions of vascular plants growing outside of cultivation in the state. On average, Atlas blocks are approximately 576 square miles in size [see OFN 2(2)]. Volunteers are encouraged to "adopt" a block and gather locality information for as many plant species, subspecies and varieties (taxa) as possible. At the time, I hemmed and hawed and finally admitted that I had not adopted a block. Later that day my wife pointed out that I was missing one of the really fun parts of the Flora project and convinced me to adopt one. I plan to look for new plant sightings while hiking, picnicking and exploring the area with my family. I'm looking forward to the experience—not only will I spend more time outdoors with my family, but I will probably also see species in the field that I have only previously seen as dried herbarium specimens and, who knows, perhaps I will come across a new state record or two.

This article is the first of a series in which I'll describe my experiences, not with just one, but with two blocks. I have decided to adopt Block 53 now and, although I will not adopt it at this time, I will also gather existing plant records for Block 78. The two blocks are quite different in a number of ways. They're practically at opposite ends of the state and have very different vegetation, topography, land ownership, and plant species composition.

Block 53 is located near the center of the Willamette Valley of western Oregon (see map, back page). The block includes parts of Benton, Linn, Marion and Polk counties and the towns of Albany and Lebanon. The topography is relatively flat and is almost entirely privately owned agricultural or urban land. The Atlas project currently has records of 374 species, subspecies and varieties for Block 53.

Block 78 is located on the southeastern edge of the Blue Mountains in eastern Oregon. It includes parts of Baker, Grant, and Malheur counties and encompasses no major towns. The Federal government owns most of the block, with portions administered by the U.S. Forest Service and others by the Bureau of Land Management. The block is topographically variable, with a number of ridges, hills, and broad valleys. We currently have only one plant record from Block 78! This is a

See Two blocks, page 21.

Friends news: Jackson Foundation grant received.

by Linda Hardison

We would like to extend a hearty thank you to Oregon's Jackson Foundation which awarded the Friends a $2000 grant to help fund the completion of a Checklist of Oregon Monocots other than the grasses. This is a significant portion of the estimated $5,000 necessary to complete this part of the *Oregon Vascular Plant Checklist.*

We are asking members of the Friends as well as other *Oregon Flora Newsletter* readers for a special contribution to raise the $3,000 balance needed to accomplish this work. Contributions made before December 31 may be eligible for matching funds from the Oregon Flora Project Challenge (see page 17). If you donate at this time you may double your gift, while joining with the Jackson Foundation to ensure that the Monocot Checklist appears in a timely fashion.

Illustrations of *Erythronium oregonum* on the front and back covers by Linda Ann Vorobik.

The Oregon Flora Newsletter is published three times a year by the Oregon Flora Project and the Oregon State University Herbarium. The Editor is Rhoda Love and the Production Assistant is Miko Nadel.

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Hardison, continued from front page

Scott finished his Ph.D. They were married in Indonesia in 1986.

After a year at Ohio State University, the couple moved to Seattle in 1987 where she enrolled as a graduate student in the Botany Department at the University of Washington. There Linda's research was in yeast molecular genetics. She received her Ph.D. in 1995 and followed Scott to Corvallis where she began a post-doctoral fellowship in the OSU Botany and Plant Pathology Department studying the molecular interactions between wheat and its fungal pathogen, tanspot.

Linda describes the next phase in their lives, "April, 1999 brought big and wonderful changes with the birth of our son Matthew. I took leave from a life in the laboratory to be home with him. Knowing how much the Oregon Flora Project needed someone to raise funds and help coordinate the growing interest of volunteers, and wanting to maintain a flexible schedule as a mom, I approached Scott about working on these aspects of the project."

Linda joined the Friends of the Oregon Flora Project, a committee of the Native Plant Society of Oregon charged with raising funds for the new Flora of Oregon, soon becoming Chairperson of the committee. She notes that her present activities — writing grants to foundations, communicating to generate interest in the project, and asking individuals and organizations for funding — are all very different from the lab work she did in the past. "However," she says, "it is a refreshing change and a big challenge about which I still have much to learn."

She goes on, "The Friends committee has been working to raise awareness of the Oregon Flora Project through press releases and displays at botanically oriented events. Our major goal for the upcoming year is to build up membership in the Friends and to increase contributions. I am very grateful to the individuals and organizations that have contributed and continue to contribute to the Flora project. The support of the Native Plant Society of Oregon has been especially outstanding. I hope that everyone who donates to the Oregon Flora Project realizes the importance of their gift, and takes delight in the knowledge that their contribution will help make a positive impact to benefit plant enthusiasts for decades to come."

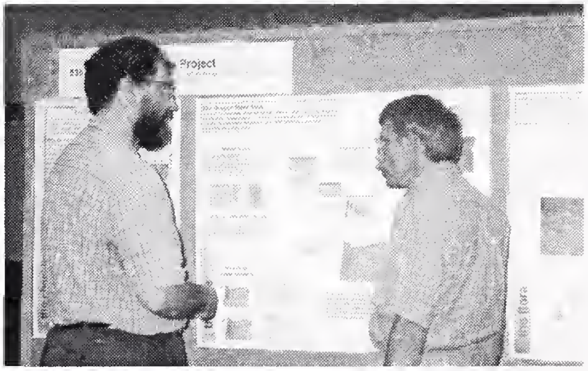
Photo: Rhoda Love

Scott Sundberg of the Oregon Flora Project and Steve Brunsfeld of the University of Idaho discuss the Flora project poster. Botanical Society of America meetings, Portland, August, 2000.

Kudzu in Oregon!

by Scott Sundberg

Kudzu (*Pueraria montana* var. *lobata*) is an aggressive vine native to China and Japan. It is a terrible weed in the southeastern US, where it infests hundreds of thousands of acres of forested land and can kill trees and pull down power lines. A quarter-acre patch of kudzu has recently been found by Oregon Department of Agriculture employees southeast of Portland in Clackamas County, and they have since learned of a second patch in southwestern Portland, in Multnomah County. These are the only known infestations in the western United States. The ODA has begun control efforts and plans eventually to eradicate the two populations.

Kudzu, a member of the legume family, has tough stems, purple, sweet-smelling flowers, and large, hairy, trifoliate leaves. If you see it in the wild anywhere in Oregon please contact the Oregon Noxious Weed Control Program at 1-503-986-4621 or call the invader hotline number 1-866-INVADER to report the site. Please also let us know so we can include the report in the Oregon Plant Atlas. You could help prevent an environmental disaster!

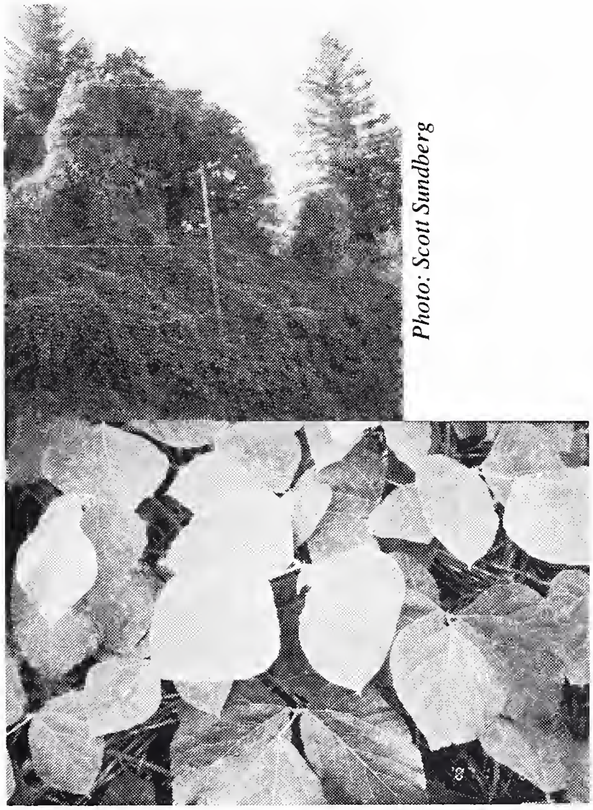

Photo: Scott Sundberg

Photo: Oregon Dept. of Agriculture

Top: Kudzu on the march in Clackamas County, before control efforts had begun. Bottom: Kudzu leaves are often ten inches wide.

The $10,000 Oregon Flora Project Challenge!

A friend of the Oregon Flora Project has established a $10,000 Challenge to match new and increased gifts in support of one of Oregon's most important botanical projects. By making a new or increased gift to the Oregon Flora Project, you will double your benefit to Oregon's only effort to produce a comprehensive set of botanical references for the entire state. The new *Flora of Oregon* and its accompanying plant Atlas will become the invaluable resource of plant information for amateurs and professionals alike. The Oregon Flora Project needs your support now!

The Oregon Flora challenge offers matching dollars to double the value of •contributions from new donors and •contributions increased over 1999's total gifts.

If you have already donated this year, we ask that you consider adding to your gift now. The challenge will double your contribution if it brings your year's total gifts to an amount greater than 1999's. Gifts are tax-deductible and must be postmarked before December 31 to be considered for this challenge.

For further information contact Maya Abels, Director of Development, OSU Foundation, at 541-737-8773 or Maya.Abels@orst.edu.

Dr. Chambers honored

The latest issue of *Madroño* [46(4), 1999] is dedicated to Professor Emeritus Kenton L. Chambers of the OSU Herbarium. The dedication reviews Dr. Chambers' distinguished career and is illustrated with two photos of Ken, one taken in Baja California in 1955.

In addition to this honor, two Oregon plants collected by Dr. Chambers have been determined to be new species and have been named for Ken. *Castilleja chambersii* M. Egger & Meinke, sp. nov. was described in *Brittonia* [51(4), 1999] with an illustration by Linda Vorobik. The Chambers collections were from Onion Peak and Sugarloaf Mountain, Clatsop County.

Poa chambersii Soreng, sp. nov. was described in *Novon* [8(2), 1998]. Ken collected the interesting dioecious bluegrass on Fairview Mountain, Lane County in July 1993. It was described by Robert Soreng of the Smithsonian Institution, a former student of Ken's.

Oregon delphiniums – Part II

by Kenton L. Chambers

In Part I of this article [OFN 6(2)] I pointed out two contrasting modes of variation in the genus *Delphinium*, as represented by the 15 species found in Oregon. One is the frequent blending of the characteristics of different species, through natural hybridization, and the other is the splitting out of distinctive localized species through mutation and genetic stabilization of novel floral color patterns. The Willamette Valley holds good examples of these evolutionary processes, perhaps as a result of catastrophic habitat disturbance 13,000 to 15,000 years ago due to Ice Age floods from the Columbia River.

Since writing that article, I have been assisted by Russ Jolley and Keith Karoly in examining a recently described larkspur of the Columbia Gorge, *Delphinium basalticum*, as possibly another localized evolutionary development in the genus. Collections and observations we made at the type locality (Oneonta Gorge) and other nearby sites have clarified the relationship of these plants, based on peculiarities of their root development. Although similar in floral morphology to the common species *D. menziesii*, the plants growing on talus and vertical basalt cliffs of the Columbia Gorge have elongated, rope-like roots rather than the short, fleshy tuberous roots of the latter species. Their primary root becomes divided lengthwise into anastomosing cords, through the development of internal corky layers of periderm.

Exactly this type of root development is characteristic of the species *D. glareosum*, known from the Olympic Mountains and high Cascades of Washington and often found in talus-slide habitats. We hypothesize that "*D. basalticum*" is a low elevation race of *D. glareosum*, and furthermore, that this species extends south in the high Cascades of Oregon to at least the McKenzie Pass region. However, throughout its occurrence in Oregon, it meets and hybridizes with a subalpine race of the tuberous-rooted species *D. menziesii*, so that no sharp distinction is possible between these two entities. Root form ranges from elongated to short and tuber-like, even within the same population, and there are practically no other differences that would be useful to separate the two species in that part of the Oregon Cascades.

Delphinium menziesii is also found in the Coast Range and the Willamette Valley, where it meets and possibly hybridizes with *D. nuttallii*, *D. pavonaceum*, and *D. oreganum*. Such hybrids are localized and do not blur the distinctions among these taxa (as happens with *D. glareosum* in the high Cascades). Following the range of *D. menziesii* south into Douglas County, however, leads one into another extensive area of intergradation, this time with *D. nuttallianum*! I have not previously mentioned this latter species, but it is the widespread morphological equivalent of *D. menziesii* found in the southern Cascades, Siskiyou Mountains, and throughout central and eastern Oregon. Except in Douglas County, these two closely related species are geographically separate (allopatric). The single consistent difference I find between them is the depth of the "notch" or cleft in the lower petals— the petal pair whose small, hairy blades hang from the center of the flower to form the characteristic larkspur "bee." In *D. nuttallianum*, this notch is conspicuous and divides the petal into two well-separated lobes; in *D. menziesii*, it is shallow or absent, and the petals are not obviously lobed. All intermediate degrees of petal notching occur, particularly in the zone of intergradation mentioned above, as well as where *D. menziesii* intergrades with *D. glareosum* (another deeply notched-petal species).

Still another area of interspecific variation for *Delphinium menziesii* is the south-coastal region of Oregon, especially where the species contacts *D. decorum*, a Californian entity that barely enters Oregon in coastal Curry County. There are herbarium collections that appear to be intergrades of these two taxa in the vicinity of Port Orford, for example.

Delphinium nuttallianum is the widespread and common low-growing, open-racemed, tuberous-rooted larkspur of mesophytic habitats in central and eastern Oregon, extending west through the south Cascades and Siskiyou Mountains to Curry County. Other names previously applied to this species (e.g. in Peck's *Manual of the Higher Plants of Oregon*) include *D. sonnei*, *D. decorum* spp. *tracyi*, *D. bicolor*, and *D. lineapetalum*. There is a distinctive regional variant of *D. nuttallianum*, common in a north-south zone on the eastern flank of the Cascade Range, whose lower petal-pair is white (or pale blue) with purple pencilling on the veins. This trait seems to represent ancestral gene flow from a distinctive species of central Washington named *D. lineapetalum*, not now present in Oregon. Where *D. nuttallianum* ranges into drier habitats, e.g. in the sagebrush zone, it may intergrade with *D. andersonii* and acquire the elongated, well-branched roots of the latter species.

Another pair of larkspur taxa that frequently intergrade in eastern Oregon are *D. depauperatum* and *D. distichum* (=*D. burkei*). Both taxa are found in meadows and open forest habitats that are moist early in the season but dry later; they differ markedly in leaf and pubescence traits, but plants of intermediate morphology frequently occur where the parent species are sympatric (grow in the same or adjacent habitats).

In a key to the Oregon species of *Delphinium* (facing page), I have selected those traits that seem to separate the taxa most clearly, but one must allow for environmentally induced variation as well as frequent intergradation between sympatric species. Subtle distinctions, for example in root development and in the notching and pubescence of the lower petals, are often critical to a choice between closely related taxa. If you enjoy challenges in plant identification, you will enjoy *Delphinium*.

Delphinium trollifolium *is a species of moist shady woods and stream banks.*

Key to *Delphinium* species in Oregon *by Kenton L. Chambers*

1. Sepals red. Species of southwestern Oregon.................................*D. nudicaule*

1. Sepals blue to purple or white.

2. Sepals white or very pale blue, sometimes greenish at tip; petals blue.

3. Sepals cupped forward or spread laterally; inflorescence raceme narrow throughout; lower petals hairy all over the surface. Species of Portland vicinity.................................*D. leucophaeum*

3. Sepals +/- reflexed to spreading; inflorescence raceme wider below, narrowed above ("pyramidal"); lower petals with hairy tuft at base of blade. Species mainly of Benton and Polk Cos.................................*D. pavonaceum*

2. Sepals dark blue or purple, rarely pale blue; upper petals often white.

4. Plants 1 m or more tall and flowers relatively small, the sepals 15 mm or less long; flowers numerous in narrow racemes; stems with wide, hollow pith cavity ("fistulose"); roots elongated, tough and fibrous.

5. Stem leaves with 5-7 broad lobes, toothed but not much dissected. Species of montane meadows and stream banks, Cascade, Siskiyou, Blue, and Wallowa Mtns.
.................................*D. glaucum* (including *D. occidentale* of *Flora of the Pacific Northwest*)

5. Stem leaves palmately dissected, the segments relatively narrow. Species of sagebrush desert and conifer forests, central and southeastern Oregon.................................*D. stachydeum*

4. Plants mostly <1 m tall, if taller then flowers larger with sepals up to 25 mm long; racemes various, often wide and open; stems fistulose or not; roots various, elongated to short and fleshy.

6. Racemes narrow throughout, the pedicels mostly no longer than floral spurs (or the lowest flowers held near the stem on upright pedicels); plants (exc. *D. andersonii*) with rather short, fleshy roots, growing in sites that are wet early in the season.

7. Roots elongated, branching, woody; stems glabrous below inflorescence; plants of sagebrush desert and dry, open forests. Species of central and southeastern Oregon.................................*D. andersonii*

7. Roots clustered, short and fleshy, not much branched; stems sometimes puberulent throughout; plants of meadows and other sites wet early in the season.

8. Stem leaves numerous, crowded, dimorphic (the lowest ones with much wider lobes than middle and upper ones); stems puberulent throughout. Species of central and eastern Oregon..
.................................*D. distichum* (*D. burkei* of *Flora of the Pacific Northwest*)

8. Stem leaves well separated, gradually reduced in size from the base upward (or nearly all basal); stems glabrous in lower part or puberulent throughout.

9. Inflorescence axis usually glandular-puberulent; leaves mostly near base of stem, the lowest green at flowering time; lower petals with hairs in a central tuft. Species of central and eastern Oregon.................................*D. depauperatum*

9. Inflorescence axis not glandular; leaves well distributed on stem, the lowest usually brown and withered at flowering time; lower petals long-hairy on blade surface and margin. Species of the Columbia River Gorge area, Wasco Co. to Puget Trough of southwestern Washington.................................*D. nuttallii*

6. Racemes more open, some of the pedicels spreading and longer than floral spurs; roots elongated and woody to short and fleshy; habitats various.

10. Roots elongated, branching, sometimes woody or ropy (divided lengthwise into anastomosing cords).

11. Plants up to 7 dm tall and with stems sometimes fistulose; fruiting pedicels strictly erect. Species of dry sites in sagebrush desert, woodlands and forests east of Cascade Range; intergradent with *D. nuttallianum*.
.................................*D. andersonii*

11. Plants often >7 dm (in 1 species); fruiting pedicels spreading to ascending. Species of moist sites in meadows and forests in the Cascade Range and westward.

12. Plants 5-20 dm tall; stems stout and fistulose; sepals 15-25 mm long. Species of moist shady woods and stream banks, mostly below 2000 feet elevation.................................*D. trolliifolium*

12. Plants <5 dm tall; stems slender, not fistulose; sepals <18 mm long. Species of cliffs, talus, moist meadows, mostly above 3000 feet elevation in the Cascade Range (lower in Columbia River Gorge); extensively intergradent with *D. menziesii*.................................*D. glareosum*

10. Roots short and fleshy, not much branched, often swollen and tuber-like, not ropy.

13. Largest leaves with 3 oblanceolate lobes (lower 2 lobes often again split 2/3 of way to the petiole), the lobes usually with 3 triangular teeth at the tip. Species of coastal Curry Co., south to California; intergradent with *D. menziesii* and *D. nuttallianum*.................................*D. decorum*

13. Largest leaves more complexly lobed with more numerous or deeper divisions, some of the lobes and teeth often linear; plants not restricted to coastal Curry Co.

14. Lower petals evenly short-hairy over most of the blade; upper petals white with bluish tip; plants up to 8 dm tall. Species of roadsides and fencerows in central Willamette Valley, mainly east of the Willamette River, from Clackamas to Linn Co.; also Saddle Mtn., Clatsop Co.; intermediate between *D. menziesii* and *D. nuttallii*.................................*D. oreganum*

14. Lower petals with hairs mainly concentrated in a tuft at center and base of blade; upper petals usually white (sometimes bluish at tip); plants <7 dm tall.

15. Lower petals blue to purple, entire-margined to shallowly notched (notch up to ¼ the length of the blade, more deeply notched in plants of high Cascades, where species is intergradent with *D. glareosum*, and in Douglas Co. where intergradent with *D. nuttallianum*). Species of low to high elevations from Cascade Range crest westward and from Douglas Co. northward (rarely disjunct in Siskiyou Mtns.)
.................................*D. menziesii*

15. Lower petals blue to purple or (in north-central Oregon) white with purple veins, deeply notched (notch ½ or more the length of the blade). Species of medium to high elevations, widespread east of the Cascades and in the Siskiyou Mtns., north to Douglas Co., where intergradent with *D. menziesii*.
.................................*D. nuttallianum*

A new regional flora

by Aaron Liston

Flora of Steens Mountain by Donald H. Mansfield. 2000. OSU Press. ISBN 0-87071-471-6.

Steens Mountain is well known to Oregon botanists, but apparently under-appreciated outside of the region. This is evidenced by the fact that Steens Mountain field trips offered for participants at the 1999 International Botanical Congress in St. Louis, and the 2000 Botanical Society of America meeting in Portland were cancelled due to lack of interest! This new flora should go a long way towards increasing the awareness and appreciation of this Oregon treasure.

Don Mansfield is a professor of biology at Albertson College of Idaho, and his *Flora of Steens Mountain* developed from the checklist and keys that he wrote for his Field Botany classes. The book describes 1,150 taxa (species plus subspecies / varieties) covering all plants known to grow on Steens Mountain and the surrounding basins (Alvord, Catlow and Harney). The flora also includes species "suspected" but not observed from this area and many plants known from adjacent areas. This expanded coverage, and the fact that Steens Mountain and the surrounding basins encompass much of the habitat diversity of southeastern Oregon and southwestern Idaho, makes the book useful across a much broader area than implied in the title. I have used it to identify plants from 50-80 miles away in northwestern Harney and eastern Crook County, and found that all of the encountered species were covered.

The flora begins with a comprehensive 27 page introduction that is well worth reading. In addition to material typically included (geography, geology, biogeography, vegetation), the introduction also covers "what makes a plant rare," the history of botanical exploration on Steens Mountain, and basic taxonomic information (how to use keys, make a plant collection, and botanical names). I was particularly impressed by the concise summary of three patterns of variation found in widespread Western genera occurring on Steens Mountain: 1) endemic taxa; 2) cases where interspecific differences (typically between a Sierra Nevadan and Rocky Mountain species) "break down" on Steens, and 3) plants that clearly belong to one species, but due to presumed introgression exhibit characteristics typical of a second species not present on Steens. This is a wonderful example of the synthesis that can result from a thoughtful floristic study, and it provides testable hypotheses for future systematic investigations.

Phoenicaulis cheiranthoides, *daggerpod, is a monotypic species found east of the Cascades in much of the west. On Steens Mountain it is found in rock outcrops at all elevations. Drawings on this page and page 18 by Jeanne R. Janish from Hitchcock et al. 1969,* Vascular Plants of the Pacific Northwest, *courtesy of University of Washington Press.*

Like *The Jepson Manual*, the *Flora of Steens Mountain* arranges the families in alphabetical order within ferns and fern allies, gymnosperms and angiosperms. However, it takes this trend one step further by not separating the monocots and dicots. The species nomenclature is also very up-to-date, incorporating names used in *The Jepson Manual* (e.g. *Cusickiella douglasii*, syn. *Draba douglasii*) and the most recent volume of the *Intermountain Flora* (e.g. *Pentaphylloides fruticosa*, syn. *Potentilla fruticosa*). In such cases, the more familiar synonym is given in the text. Unfortunately, the index is to genera only, and thus species cannot be looked up based on an older name. For example, if one does not realize that *Draba douglasii* is now placed in *Cusickiella*, one will search in vain for the species in the *Draba* account.

Approximately 25% of the species are illustrated by line drawings. Especially helpful are the details of diagnostic features of selected genera, e.g. *Cryptantha* nutlets and *Carex* perigynia. The species line drawings are from *Vascular Plants of the Pacific Northwest*, and thus intermountain plants are poorly represented. A total of 62 species are illustrated with color plates. Although the plates are attractive, they are neither numbered nor arranged taxonomically, and thus one must browse among 8 pages of photos to find a particular species.

The keys and descriptions are very "user friendly." The descriptions are brief, focusing on the diagnostic features of a taxon. In most cases, these provide enough information for confident identification. However, if you are using the flora outside of its circumscribed range, the limited descriptions may not be sufficient, and I would recommend consulting a second flora before attaching a name to a plant. Species that are only known from adjacent areas are clearly noted, providing targets for botanists eager to add new records to the flora.

This is the first complete regional flora for Oregon since Georgia Mason's 1975 *Guide to the Plants of the Wallowa Mountains of Northeastern Oregon.* Don Mansfield has done an excellent job of synthesizing his extensive field experience with the latest taxonomic findings, and presenting this information in a scientifically accurate and generally accessible format. *Flora of Steens Mountain* is an important contribution to Oregon botany.

This is one of two regional floras (*Flora of Mount Rainier National Park* will be reviewed in a later issue) published this year by the Oregon State University Press. The OSU Press is to be congratulated for publishing these two fine works, and is encouraged to continue to include floras in its offerings.

Two blocks continued from front page

common species of groundsel (*Senecio*) that was collected in the area and the data entered into the OSU Herbarium database.

I will be using very different methods for gathering plant records for each of these two blocks. I will be doing a fair amount of field work in Block 53 and will be sampling in all of its major habitats. We currently have 34 species lists for the block in the Atlas project files. All but three of these were made on very small parcels of land, most of which were remnant Willamette Valley prairie sites. There are no species lists for urban areas, roadsides in agricultural areas, or for a number of other habitats that occur in the block.

My approach for Block 78 will initially not be field oriented, but will rely on data gathered by the Forest Service and the BLM on their lands. Early in the process I will consult with Paula Brooks, who is the Oregon Plant Atlas Project Regional Coordinator for the area, and ask about sources of data. I will then be requesting species lists from vegetation plot surveys and other studies conducted by the agencies.

If I had to, I would guess that there are over 800 plant taxa in Block 53, only 374 of which have so far been recorded. Block 78 probably has many more, and I'll guess 1,000 taxa. I expect that a number of weedy species occur in both blocks, but many others will be found in only one or the other of them. I wouldn't be surprised if I found new records for the state. It will be interesting to see how work on the two blocks progresses over the next few years.

Online Oregon Flora Newsletter

This is the first issue of the *Oregon Flora Newsletter* to be posted on the OSU Herbarium website before paper copies have been mailed. Miko Nadel, who is also the Production Assistant for the newsletter, has recently made a number of improvements to the website. The online OFN can be viewed at **http://www.orst.edu/dept/botany/herbarium**. The site has additional information about the Oregon Flora Project and other activities of the OSU Herbarium and its staff.

Thanks

Thanks to the Jackson Foundation, North American Rock Garden Society Siskiyou Chapter, Native Plant Society of Oregon and the NPSO Portland Chapter, which have made significant contributions to the Oregon Flora Project.

The following donors have recently contributed via the OSU Foundation or the NPSO Friends: Glen Cole, Harry Demaray, Jan & Dave Dobak, Pat Dysart, Mary Ehlers, Tanya Harvey, Cheryl Ingersoll, Tinessa Johnsrud, Ulo Kiigemagi, John Koenig, Kenneth & Robin Lodewick, Rhoda & Glen Love, Bob Ornduff, Richard Prusz, Laurel Reuben, Charlene Simpson, Alice Smith, Nadine Smith, Angela Sondenaa, Vivian Starbuck, Deborah Ann White, and Anna Zeigler.

Thanks to the following who have helped by volunteering, sending in species lists or specimens, or providing information on Oregon plants: Connie Battaile, Richard Brock, Tim Butler, Jan & Dave Dobak, Joerg Ewald, Don Heinze, Russ Jolley, Keith Karoly, Jeanne Klein, Jay Lunn, Barbara Mumblo, Judy Oliver, Robert Oliver, Cindy Roché, Hawkeye Rondeau, David Stone, Belinda Vos, Lou Whiteaker, and Marcia Wineteer.

In Memoriam: Robert Ornduff (1932 - 2000)

The botanical world lost a dedicated friend when Bob Ornduff died September 22 in Berkeley. Bob was a native Oregonian who became an expert on the California flora. He was a former director of the University of California Botanical Garden in Berkeley. Bob was well-known in Oregon for his botanizing trips, his attendance at meetings and his visits to the OSU Herbarium. He wrote the Oregon Checklist treatment of the touch-me-not family (Balsaminaceae). He will be very much missed.

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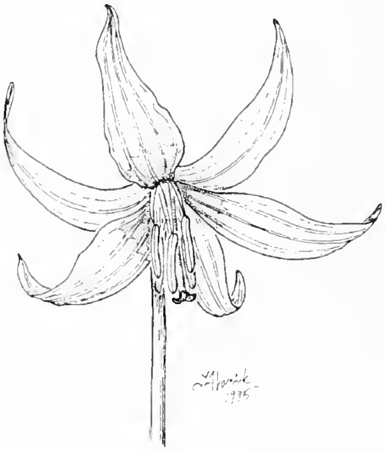

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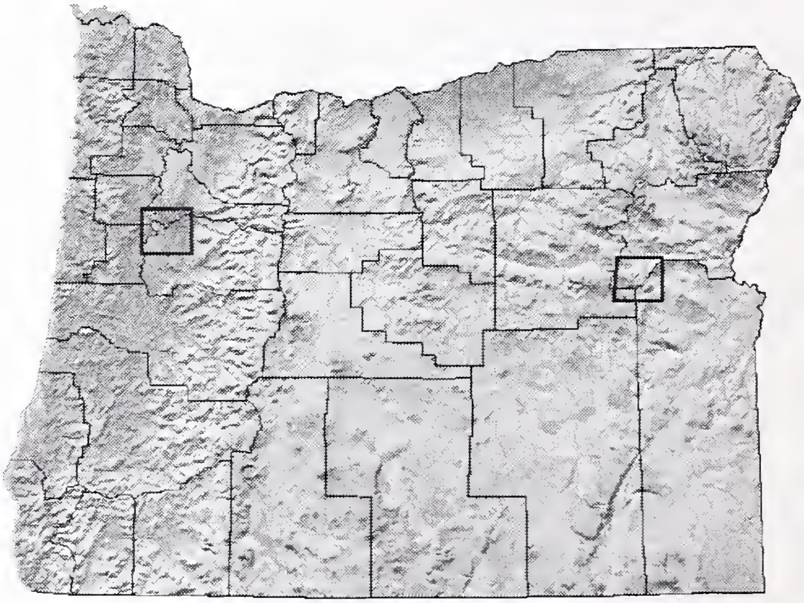
Did you know?

- The names *Delphinium nuttallii* and *D. nuttallianum* both honor the explorer and author Thomas Nuttall (1786-1859). The spelling "nuttallii" is the Latin genitive (possessive) case, hence *Delphinium nuttallii* is translated as "Nuttall's larkspur." "Nuttallianum" has the form of a Latin adjective (similar to words like Darwinian, Jeffersonian, Oregonian). Literally, *Delphinium nuttallianum* means "the Nuttallian larkspur." Nuttall collected the type specimens of both species while exploring the Oregon Territory in 1834-35.

- The name for daggerleaved rush, which has broad, flattened stems and leaves, has bounced between *Juncus ensifolius* and *J. xiphioides*. "Ensifolius" is derived from Latin words for sword and leaf and "xiphioides" is derived from Greek words for sword-like.

- The genus name *Olsynium*, proposed by Constantine Rafinesque in 1836, has recently been adopted for *Sisyrinchium douglasii* (purple-eyed grass) and related taxa. The word *Olsynium*, according to Rafinesque, means "hardly united" — alluding, perhaps, to the stamen filaments being fused only near the base, rather than fully united as in *Sisyrinchium*.



Atlas Blocks 53 and 78

Over the next few years we will follow progress on listing plant species in these two areas of Oregon.